

**CONFIDENTIAL - NOT FOR PUBLIC RELEASE**

**SITE SUMMARY AND RECOMMENDATION**

The Columbia Smelting & Refining Works site (EPA ID No. NYN000206593) (hereinafter referred to as "the site") is the location of a former secondary lead smelter that occupied approximately 10,843 square feet (ft<sup>2</sup>) at 98 Lorraine Street, Brooklyn, Kings County, NY, 11231. The site's historical operations were conducted on the northwest corner of Block 581, Lot 1.

The operational history of the Columbia Smelting & Refining Works (Columbia Smelting) as a lead smelter is documented. A 1931 advertisement published in the Standard Metal Directory indicated that Columbia Smelting & Refining Works, Inc. at 98-106 Lorraine Street manufactured soft lead, antimonial lead, babbitts (i.e., a group of lead-tin-antimony alloys), solder, and several other metal products. The advertisement also listed items consumed by the company, which included cable lead, battery plates, soft lead, and Babbitt. The 1938 Sanborn® map indicates the presence of "Columbia Smelting & Refining Works Inc., refinery & furnaces" at the subject property; earlier Sanborn maps through 1928 do not show the presence of the facility. The 1938 Sanborn map also depicts the Red Hook housing project, "built 1938", located across Lorraine Street and north of the subject property. Red Hook Houses is the largest public housing development in Brooklyn, covering a large area located from west-northwest to east-northeast of the subject property.

The next available Sanborn map coverage in 1950 shows that the buildings on the subject property had been leveled and the property had been incorporated into a playground (i.e., Red Hook Recreation Area; referred to hereinafter as "Red Hook Park"), which extends from Lorraine Street to Bay Street and Hicks Street to Henry Street and covers that section of Creamer Street. The subject property is shown as vacant on available historical aerial photographs dated 1924 and 1940, which pre- and post-date the documented years of operation (i.e., 1931-1938). The 1943 aerial photograph depicts four baseball fields (still present today) at the aforementioned playground area; the footprint of the site is located within the baseball field located at the corner of Hicks and Lorraine Streets. In a search of city directories dated 1928 to 2013, the subject property was not identified and adjoining properties were not found.

The current property owner of Red Hook Park, which includes the site, is the New York City Department of Parks and Recreation (NYC Parks). Based on review of historical aerial photographs, the ballfields were constructed between 1940 and 1943 after the entire block had been leveled. The site is bound to the east by additional Red Hook Park property and to the north by Lorraine Street and the New York City Housing Authority (NYCHA) Red Hook East property. Red Hook East, completed November 20, 1939, is the largest part of Brooklyn's largest housing development; it has 27 buildings with 2,528 apartments housing approximately 5,654 people. The site is bordered to the west by Hicks Street and a mixed residential, commercial, and industrial block. South of the site are additional Red Hook Park property and Bay Street.

Columbia Smelting operated as a secondary smelter, which can be responsible for releasing large amounts of lead contamination into the surrounding environment. Therefore, the potential of a lead release to the surrounding residential and commercial properties existed for at least seven years in the 1930s. The

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facility also produced and consumed lead-tin-antimony alloys; therefore, there was a potential for tin and antimony to be contained in any historical releases from the facility.

On October 15–16, 2014, Weston Solutions, Inc. (WESTON®) personnel collected soil samples on behalf of EPA from the grassy areas on the NYCHA Red Hook East development, from the rights-of-way (ROW) located along Lorraine Street and Henry Street, and from Red Hook Park within and downwind of the former smelter footprint. Soil samples were also collected to document background conditions from locations considered to be outside of the influence of site activities and historically upwind of the site.

The soil samples collected by WESTON were analyzed at the EPA Region 2 Laboratory for Target Analyte List (TAL) Inorganics (i.e., Metals), including tin but excluding mercury and cyanide. Analytical results indicate concentrations of lead, antimony, and tin on-site and in historically downwind, exposed soil to be significantly higher than concentrations documented at background locations (i.e., greater than three times the background concentrations). Based on these results, the estimated area of observed contamination extends across approximately 3 acres of Red Hook Park. Elevated lead and tin levels were also detected at sample location 1411-S02, located within the residential property northeast of the site (NYCHA's Red Hook East housing development). The lead and tin concentrations are not considered to be attributable to the site, and the residential property is not included in the estimated area of observed contamination.

An HRS QuickScore (Version 3.0.5) analysis of the Columbia Smelting & Refining Works site was conducted on the basis of an area of observed contamination at a public park affecting a small worker population in the soil exposure pathway (i.e., on-site soil contaminated with lead), and potential to release to air. This analysis results in a site score of 2.53, which is below the 28.5 minimum score required for placement on the NPL. In addition, WESTON completed a sensitivity analysis as follows: if the area of observed contamination extended to sample location 1411-S02 on the NYCHA Red Hook East property, there would be an estimated 840 residents considered as subject to Level II actual contamination in the soil exposure pathway, and the site score would be 50.03. However, as stated above, the contamination at sample location 1411-S02 is not considered to be attributable to the site.

Based on an evaluation of the above conditions, a recommendation of **NO FURTHER REMEDIAL ACTION PLANNED (NFRAP)** is given to the Columbia Smelting & Refining Works site.